

## PDF hosted at the Radboud Repository of the Radboud University Nijmegen

The following full text is a publisher's version.

For additional information about this publication click this link.

<http://hdl.handle.net/2066/79338>

Please be advised that this information was generated on 2017-12-06 and may be subject to change.

# Topic agreement in NGT (Sign Language of the Netherlands)<sup>1</sup>

ONNO CRASBORN, ELS VAN DER KOOIJ, JOHAN ROS AND  
HELEN DE HOOP

## Abstract

*In this article we investigate topics in NGT (Sign Language of the Netherlands). NGT is a topic-prominent language in which sentences start with the topic(s) and the remainder of the sentence is interpreted as a comment about that topic. Topics are identifiable in NGT first and foremost by their prosody: they always form a separate prosodic unit. We show that NGT has different types of topics that can precede the rest of the sentence: argument topics and spatio-temporal topics. Both types of topic occur sentence-initially, but when both are present in one sentence, argument topics precede spatio-temporal topics. The main aim of our article is to argue that all types of topics can be referred to by sentence-final indexes, contra Bos (1995) who claimed that copied sentence-final indexes always refer to subjects. We will analyze these clause-final anaphoric pronouns as an instantiation of topic agreement. Thus, we argue that NGT has topic agreement.*

## 1. Introduction

Sentences can be divided into a topic (what the sentence is about) and the comment (what is said about the topic). Usually, the topic precedes the comment. This ordering is sometimes seen as ‘iconic’: what comes first in a sentence is ‘older’ than what comes afterwards (Haiman 1978). Notoriously, in at least 80 % of the languages of the world, sentences start with the grammatical

---

1. We acknowledge the Netherlands Organisation for Scientific Research (NWO, grant no. 360-70-140, 360-70-310 and 360-70-220) for financial support. This paper benefited from the comments and insights of Geertje van Bergen, Inge Zwitserlood, Sander Lestrade, as well as two anonymous reviewers.

subject. Since the subject of a sentence is usually what the sentence is about, hence the topic, most subject-initial sentences could also be viewed as topic-comment sequences. In this paper, however, we distinguish between grammatical subjects and topics. We will only call a constituent a topic if it is somehow identifiable as a topic, e.g., by its position, by morphological marking, or by prosody. We will argue that in Sign Language of the Netherlands, topics are sentence initial and identifiable by their prosody: they always form a separate prosodic unit.

The difference between a subject and a topic is illustrated by the Indonesian pair of sentences in (1) and (2). Sentence (1) shows a topic which is also the subject of the predicate (Li and Thompson 1976):

- (1) *Ibu anak itu, dia membeli sepatu.*  
 mother child that she buy shoe  
 'That child's mother, she bought shoes.'
- (2) *Ibu anak itu membeli sepatu.*  
 mother child that buy shoe  
 'That child's mother bought shoes.'

The only difference between the topic-comment structure in (1) and the subject-predicate structure in (2) is that in (1) the pronominal subject *dia* 'she' is added that refers back to the sentence-initial topic. If we leave out the pronoun, as in (2), we get a plain subject-predicate structure. Although we might still interpret the initial subject as the topic which the sentence is about, we will not call it a 'topic' in this paper, since without the resumptive pronoun it is not identifiable as a topic.

A topic does not have to be (coreferential with) the subject, in fact it does not even have to be an argument of the predicate. According to Li and Thompson (1976), this latter characteristic is an important property of topics cross-linguistically. This becomes clear when we consider some examples of topic-comment structures in languages that are (at least partly) topic-prominent. Consider the following examples from Mandarin Chinese, Korean, and Japanese, respectively (Li and Thompson 1976):

- (3) *Nei-chang huo xingkui xiaofang-dui lai de kuai.*  
 that-CL fire fortunate fire-brigade come PART quick  
 'That fire, fortunately the fire-brigade came quickly.'

Clearly, in the Mandarin Chinese example (3) the subject of the predicate *lai* 'come' is *xiaofang-dui* 'the fire-brigade' and not *nei-chang huo* 'that fire'. Yet, the fire is the topic of the sentence (it is in topic position), and what is said about it is that fortunately, the fire-brigade came quickly (the comment). So, the noun phrase 'that fire' is not an argument of the predicate, but it is the

topic, and even though the comment does not contain an explicit reference to the topic, it is understood as a proposition that contains information *about* the topic. Huang (1994: 162) claims that in a topic construction, some constituent of the comment or the comment as a whole must say something about the topic. Shortly, we will rephrase that observation as a constraint against vacuous topic-hood: if there is a topic, then something must be said about that topic.

In the Korean example (4), the topic is not an argument of the predicate either, in fact it is not even a noun phrase, but a temporal adverb:

- (4) *Siban-in hakkjo-ga manso.*  
 now-TOP school-SUBJ many  
 'Nowadays, there are many schools.'

In (4), the presence of the topic-marker *-in* (as well as the sentence-initial position) indicates that *siban* 'now' is the topic of the sentence. The comment is about this topic, the present time, and it states that there are many schools. Again, the topic is definitely not an argument of the predicate.

In the Japanese example (5), we see a similar phenomenon, but here it is not the time, but the location that serves as the topic:

- (5) *Gakkoo-wa buku-ga isogasi-katta.*  
 school-TOP I-SUBJ busy-PAST  
 'At school, I was busy.'

We will call topics that refer to either the time or the location *spatio-temporal topics*. In the remainder of this paper, we will distinguish two types of topics, spatio-temporal topics and argument topics, which we both find in Sign Language of the Netherlands (NGT).

The sometimes heated debate about the relationship between topic and subject in languages like Chinese is reviewed in Shi (2000). Shi (2000) argues that a topic in Mandarin Chinese has no independent thematic role, but always depends on an element in the comment for its interpretation. Therefore, the topic has no syntactic function of its own. Since topics are syntactically less dependent on their comment than subjects on their predicates (Li and Thompson 1976), subject-verb agreement is a much more common phenomenon than topic-verb agreement, although the latter does exist (see for example Givón 1976; Donohue 2008; Morimoto 2008). Because the topic provides the spatial or temporal location of the entity with respect to which the comment holds, quite frequently we find pronominal elements in the sentence that refer back to the topic. In fact, in some languages the topic clearly controls the reference of an otherwise 'free' pronoun. This can be seen in Mandarin Chinese, for example. In (6), where Xiaohua is the topic and Xiaoming is the subject of the clause, the pronoun *ta* 'he/she' must be co-referential with the topic (Huang 1991):

- (6) *Xiaohua, Xiaoming yi jin wu, ta<sub>3sg</sub> jiu ba men guan shang le*  
 ‘Xiaohua<sub>k</sub> as soon as Xiaoming<sub>i</sub> enters the house, he<sub>k</sub> closes the door.’

Note that if *ta* ‘he’ would not refer back to the topic, this would be a violation of the ban on vacuous topics: if there is a topic, then something must be said about that topic, i.e., there should be an (interpretive) element in the comment that refers back to the topic (see also Shi 2000). However, there is no need for an explicit (morphological or other) marking in the comment to agree with or refer back to the topic.

The main claim of the present article is that NGT is a language in which the topic, rather than the subject, controls the reference of the clause-final pronoun. In languages in which overt pronouns are used which are co-referential with the topic, this anaphoric pronoun should be viewed as topic agreement (Givón 1976). Therefore, we claim that the clause-final pronoun in NGT is an instantiation of topic agreement.

## 2. Topics in NGT

Right from the very first investigations of American Sign Language (ASL), by far the most studied sign language until now, it has been noted that the language frequently organizes signs to form topic-comment sequences, with the topic in initial position (Fischer 1975; Friedman 1976; Liddell 1980). Moreover, the topic unit receives a specific type of non-manual marking, setting it off prosodically from the comment that follows. Similar topic-comment constructions have been noted in many European signed languages since the 1980s, such as Swedish Sign Language (Bergman 1984), British Sign Language (Deuchar 1983), Danish Sign Language (Engberg-Pedersen 1990) and Sign Language of the Netherlands (Coerts 1992). Rosenstein (2001) argues that topics are sentence-initial in Israeli Sign Language (ISL) as well, but that there is no consistent non-manual marker of the unit; more commonly, ISL topics are followed by an intonational break of some kind, such as a short pause. Sandler and Lillo-Martin (2006) highlight that Rosenstein used data from spontaneous discourse, rather than isolated sentences; they found that the brow raise known from the literature on ASL was also observed to mark ISL topics in a data set containing isolated sentences. Further, Rosenstein (2001) argues that for ISL, there is no evidence that the initial topics are derived from a standard sentence structure: topics occur in all kinds of sentences in ISL, and they are not always arguments of the predicate in the rest of the sentence. Thus, she suggests that the topic-comment order is in some sense basic in ISL.

In Sign Language of the Netherlands, NGT, two types of topics occur, which we will call *argument topics* (noun phrases that function as argument, i.e. sub-

ject or object, of the predicate) and *spatio-temporal topics*. In (7) we give examples of subject topic (7a) and object topic (7b) in NGT.

- (7) a. *MEISJE*  $PT_{Left}$ ,  $PT_{Left}$  *BOEK* *WEGGOOIEN*  $PT_{Left}$   
 girl there/that she book throw away she  
 'That girl, she threw away the book'
- b. *BOEK*  $PT_{Right}$ ,  $PT_{Left}$  *WEGGOOIEN*  $PT_{Right}$   
 book there/that he throw away it  
 'He threw away the book.'

The subject topic in (7a) needs to be clearly marked by a forward head position and raised eyebrows. The first subject pronoun (after the topic) can be left out, leading to a less emphatic or specific interpretation of the subject ('the girl' instead of 'that girl'). However, topics can also occur without clear prosodic marking (cf. Rosenstein 2001 on ISL). In the sentences that we discuss in the remainder of this paper we will focus on subject topics.

Both argument topics and spatio-temporal topics can occur in one sentence. When time and place specifications are present, it is usually assumed that sentences start with these spatio-temporal topics. The argument topics were found to precede the spatio-temporal topics, rather than the other way round.

Time specifications typically precede place specifications in NGT. In many instances there is a short pause or head nod after the time specification. This is indicated by the use of a comma in the NGT gloss line. The time and place specifications that follow the argument topic 'the man' can sometimes be realized as a single prosodic unit; no pause between the two specifications is evident and neither the body or head posture nor the facial expression change.

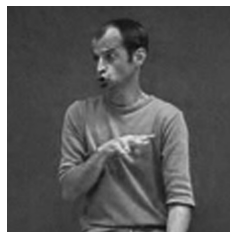
- (8)                      neutral                      tilted                      nod                      neutral  
 $PT_{Right}$  *PERSOON* *MORGEN THUIS*,  $PT_{Right}$  *KRANT LEZEN*  $PT_{Right}$   
 that person tomorrow at home he newspaper read he  
 'The man, tomorrow at home he will read the newspaper.'

Both the argument topic and the final point have a neutral head position, i.e., no specific position with respect to the previous position. The spatio-temporal topics form a prosodic unit in that they share the tilted head position. Note that the final pointing sign in this example refers back to the argument topic, which happens to be the subject as well.

Prosodic marking of topics that we have observed in NGT include head and body position, eyebrow configuration, and the occurrence of eye blinks between prosodic units. As we will argue shortly, the occurrence of final pointing signs is used as a marker of topic-hood as well, as there is spatial location agreement between the topic and the pointing sign.

In the present study, at least two types of linguistic information that can be expressed non-manually were found to co-occur with the articulation of topics, yet should not be taken as non-manual topic markers themselves: the marking of shared information and the use of locations in space. Shared information appears to be expressed by squinted eyes and a head tilt of some kind. Locations in space can be marked by eye gaze in the direction of the location as well as by a head turn or head tilt in the direction of a location; the latter are illustrated in (9). These markers can also be used for the introduction of new locations in the signing space and relating them to a place in the world or a referent ('localisation').

- (9) Turning vs. tilting of the head, in both cases accompanied by eye gaze in the same direction. Turning is a rotation about the vertical axis, tilting is rotation about the front-back axis.



*Rightward head turn*



*Leftward head tilt*

A different methodological problem in attempting to establish prosodic boundaries arises in the analysis of eye blinks. Research on several signed languages reveals that eye blinks tend to co-occur with prosodic boundaries (Wilbur 1994 for American Sign Language; Sze 2004 for Hong Kong Sign Language). Rosenstein (2001) explicitly argues that blinks tend to occur between topic and comment in ISL sentences. However, these studies also emphasize that eye blinking has a clear physiological source: they function to protect the eye ball by keeping it humid. The frequency and timing of eye blinking is influenced in part by psychological and physiological factors such as stress or fatigue. Within that context, the occurrence of blinks with respect to linguistic constituents can thus not be seen as a linguistic process of 'marking' boundaries, yet the *distribution* of blinks over a stretch of signing may be indicative of linguistic boundaries. Another option that has not yet been investigated is that the timing of eye blinks is influenced by low-level articulatory processes (of either manual or non-manual articulators) that have no relation with linguistic structure at all. As we noted above, although we have observations of eye blinks occurring after topic constituents for NGT, we have not systematically annotated and studied eye blinks because of the above complexities involved in its study and the many unknown factors.

While the correlation of a non-manual feature with specific linguistic meaning or syntactic function is thus a complex matter, the establishment of prosodic boundaries can be relatively straightforward. Sandler (1999; Nespor and Sandler 1999) has argued that signed languages like spoken languages organize strings of signs in hierarchically ordered prosodic domains. The domains of the prosodic hierarchy that were proposed for spoken languages in Nespor and Vogel (1986) are also applicable to signed languages, it is argued (see also Sandler and Lillo-Martin 2006; van der Kooij and Crasborn 2008). Thus, syllables can be organized into feet, which in turn form prosodic words, phonological phrases, intonational phrases and utterances. As in spoken languages, some phonetic correlates may spread over the whole prosodic domain, while others occur at the boundaries of a domain (Gussenhoven 2004). Below, we will argue that topics in NGT are often realized as a separate prosodic constituent. We leave the question of which of the clause initial elements get which type of non-manual marking for further investigation. Our consultant's intuition with respect to examples (7) and (8) can serve as a starting point.

We found evidence for prosodic boundaries between argument topics and spatio-temporal topics and between the topics and the rest of the sentence. Most apparent is the prosodic boundary between spatio-temporal topics and the rest of the sentence. While spatial and temporal parts that occur in sequence can be realized as two separate prosodic domains with a pause or manual lengthening (in the form of a hold of the final position or movement repetition) at the end of each, they can also be realized as a single unit with only one clear prosodic boundary at the end. A clear change in head position marks the transition from the spatio-temporal topic to the rest of the sentence, as is also found for ISL (Meir and Sandler 2008).

Consider again example (8) (here repeated as (10)) in which the spatio-temporal topics form a prosodic unit in that they share the tilted head position: there is no pause between the two specifications, and the body and head posture as well as the facial expression do not change.

- (10)
- |                           | neutral   | tilted                | nod                       | neutral                                      |
|---------------------------|---|-----------------------|---------------------------|--|
| <i>PT<sub>Right</sub></i> | <i>PERSOON</i>  | <i>MORGEN THUIS</i> , | <i>PT<sub>Right</sub></i> | <i>KRANT LEZEN</i> <i>PT<sub>Right</sub></i> |
|                           | he person   | tomorrow at home      | he                        | newspaper read he                            |
|                           | 'The man, tomorrow at home he will read the newspaper.' |                       |                           |  |

It is possible that this structuring into one or two prosodic domains is related to the speed of signing (Nespor and Vogel 1986). In any case, there is a clear contrast with the preceding argument topic, if any. The subject or object topic appearing at the beginning of the sentence always receives a prosodic unit of its own, and cannot be prosodically merged with either the temporal or the spatial information following it. We therefore argue that all types of topics form



an intonational phrase of their own, and that the spatial and temporal part of a spatio-temporal topic may be restructured into a single intonational phrase, each forming one phonological phrase. As the phonological phrase is the lowest domain in the prosodic hierarchy of Nespor and Vogel (1986) that can encompass more than one lexical word (plus any cliticized elements for each lexical word), it is the phonological phrase rather than the prosodic word that is most plausibly the prosodic domain corresponding to spatial and temporal topics when they are separated: only in that way can longer spatial or temporal topics be included.

Thus, we propose that the following prosodic structures in which the different kind of topics may appear in NGT.

- (11) [ [argument topic]<sub>PP</sub> [spatio-temporal topic]<sub>PP</sub> ]<sub>IP</sub>  
 [ [argument topic]<sub>PP</sub> [spatial topic]<sub>PP</sub> [temporal topic]<sub>PP</sub> ]<sub>IP</sub>

Finally, consider example (12) from Japanese. In this example, the noun phrase *gakusee* ‘students’ is the topic that serves as the domain of quantification for the indefinite quantifier *one* in argument position, but the set of students it refers to has to vary by professor, hence the topic is non-specific and non-referential (Portner and Yabushita 2001).

- (12) *Gakusee wa dono kyooju mo okiniiri no mono ga*  
 students TOP which professor also favourite of one NOM  
*hitori iru.*  
 one.person is  
 ‘Every professor has a favourite student of his/hers.’

Although topics are usually considered to be specific or definite, in (12) an indefinite noun phrase is used that denotes the whole set of students, not a contextually restricted (referential) set. Note that the topic in the NGT sentence (13) is not referential or specific either.

- (13) *KLEREN, HOUDEN VAN TRUI PT<sub>Chest</sub>*  
 clothes, love sweater I  
 ‘As for clothes, I like sweaters’

In (13) the topic also denotes a non-restricted (non-referential) set. As a consequence, being non-specific, this set is not localized in signing space, and we hypothesize that because of this, the marking with raised brows becomes more important. In NGT, when the topic is referential (specific), such as *MOOIE TRUI* ‘nice sweater’ in (14), it is localized in the signing space in discourse, and the marking with raised brows is not obligatory.

- (14) *MOOI TRUI PT<sub>Left</sub> DUUR PT<sub>Left</sub>*  
 nice sweater there, expensive there  
 'That nice sweater is expensive.'

### 3. Anaphoric pronouns in the comment

Van Gijn (2004) argues that all topicalized constructions in NGT are instances of left-dislocation, which in her approach means that the initial constituent marked by a prosodic topic marker is base-generated in its position, while an empty pronoun is assumed to be in the relevant argument position. This covert anaphoric pronoun is coreferential with the topic.<sup>2</sup> In van Gijn's data, there appear to be no cases where the anaphoric pronoun is overt. That is, in the examples there is no overt indexical sign or eye gaze in the direction in space where the topic-marked constituent is localized. This analysis makes the implicit argument that all topics are arguments of the verb. Two examples provided by van Gijn (2004) are given in (15) and (16):

- (15) *COFFEE POINT MAN WANT*  
 'As for (the) coffee, the man wants some.'
- (16) *AMERICA INGE POINT<sub>Right</sub> KNOW WHO GO.TO*  
 'As for America, Inge knows who goes there.'

Thus, both in (15) and (16) and in all other sentences of this type, van Gijn (2004) assumes that there is a covert (i.e., empty) pronominal element in sentence-final position that refers back to the topic. We do not assume any empty structure (no empty pronouns for example), but the interpretation of the sentence remains as suggested by van Gijn (2004), because we assume the meaning is *recoverable* via the presence of the topic. Of course, what also plays a role is that the predicate *WANT* in (15) requires two arguments in order to assign its thematic roles to an agent who wants something and to a theme, 'the wanted'. There is yet another principle at work that accounts for the right meaning of the sentences without an anaphoric pronoun, such as in (15) and (16). This constraint states that when there is a topic, then the rest of the sentence (the comment) must be *about* the topic. Although it may seem trivial, this constraint plays an important role in interpretation, as it requires the comment

2. Van Gijn states that the non-manual marker of the topic constituent "can consist of the following elements: raised eye brows, a lowered chin and wide opened eyes" (2004: 160). The lowering of the chin most likely does not refer to the opening of the mouth, but to the forward tilting of the head; this forward tilt may well be identical to the forward movement of the head (without forward rotation) that we have observed to cooccur with topic constituents in our data.

to be interpreted with respect to the topic. That means that if an argument is missing from the predicate in the comment, it is automatically interpreted as being coreferential with the topic, in order to satisfy the constraint that penalizes vacuous topics.

According to Bresnan (2001), many languages have a distinct series of pronominal forms reserved for reference to the topic. For example, in Chicheŵa, morphologically bound pronominal forms must be used to refer to a topic in left-dislocated position (Bresnan and Mchombo 1987). In Chicheŵa, a full (free) pronoun cannot be used anaphorically. Therefore, it cannot refer back to the topic, as can be seen in (17) (Bresnan, 2001):

- (17) ?\**Mkángó uwu ndi-na-pít-á ndí íwó ku msika.*  
 lion this I-RM.PST-go-INDIC with it to market  
 ‘This lion, I went with it to market (*it* must be something other than the lion).’

Since the free pronoun *íwó* ‘it’ cannot refer anaphorically in Chicheŵa (one would have to use a reduced pronoun for anaphoric reference), it cannot refer to the topic. That is why the sentence becomes ill-formed, as there is no relation between the topic and the rest of the sentence. Clearly, the ill-formedness of the sentence is due to the fact that the comment has to be *about* the topic. Or, to put it differently, ‘vacuous’ topic-hood is not allowed. If one starts with a topic, say ‘As for John ...’, then what follows has to be interpreted with respect to John. Since such an aboutness-reading is unavailable in (17), the sentence becomes ungrammatical. It does not have to be strict co-referentiality, however, that relates the topic to an anaphoric element in the comment. This can be seen from the Japanese example in (18) (Portner and Yabushita 2001):

- (18) *Taro wa aru saru ga bentou o nusunda*  
 Taro TOP a.certain monkey NOM lunch.box ACC stole  
*to shinjiteiru*  
 COMP believe  
 ‘Taro believes that a certain monkey stole his lunch box.’

In (18), although there is no anaphoric element, the ‘lunch box’ is straightforwardly interpreted as ‘Taro’s lunch box’, because one way or the other, the comment has to contribute information about the topic. Of course, we have already seen more cases where no pronominal element in the comment explicitly refers back to the topic, but the comment is still understood as being about the topic (cf. (3)–(5) above).

At this point, we can understand why a sentence such as (15), repeated below as (19), will not be problematic to interpret.

- (19) *COFFEE POINT MAN WANT*  
 'As for (the) coffee, the man wants some.'

Many languages are like NGT in the sense that they allow 'null' arguments, whose referents are recoverable from the context. For example, as an answer to the question in (20), Japanese allows the answer in (21), where both the subject and the object are absent. Clearly, there is no problem in interpreting the answer, but in English, the same answer would be ungrammatical (cf. (22); Portner and Yabushita 2001; see also Vallduví 1990).

- (20) *Jon wa gitaa o kai-mashi-ta ka.*  
 John TOP guitar ACC buy-POLITE-PAST Q  
 'Did John buy a guitar?'
- (21) *Hai, kai-mashi-ta.*  
 yes buy-POLITE-PAST  
 'Yes, he did.'
- (22) \*Yes, bought.

NGT is like Japanese in this respect, as it allows for a structure as in (22) quite easily as long as the meaning is recoverable from the context. This is illustrated by the following question-answer pair from Van Gijn (2004):

- (23) a. Question: Does Alinda like that shirt?  
 b. Answer: YES LIKE  
 'Yes, she likes it'/'Yes, she does.'

We have seen above that the anaphoric pronouns in the data by Van Gijn (2004) are not expressed (recall the examples in (15) and (16) above). However, in data that we discuss below, we have many sentences in which the anaphoric pronoun is overtly expressed as a final indexical sign that points to the topic. Or, to put it differently, sometimes the anaphoric pronoun that refers to the topic, is expressed in NGT, and sometimes it is not. The examples of subject and object topics in (7), repeated here as (24), can both be realized *without* the final anaphoric pronoun.

- (24) *MEISJE PT<sub>Left</sub>, PT<sub>Left</sub> BOEK WEGGOOIEN (PT<sub>Left</sub>)*  
 girl there/that she book throw away (she)  
 'That girl, she threw away the book'
- (25) *BOEK PT<sub>Right</sub>, PT<sub>Left</sub> WEGGOOIEN (PT<sub>Right</sub>)*  
 book there/that he throw away (it)  
 'He threw away the book.'

Obviously, when there is an anaphoric pronoun present, we yield the same interpretation as when there is not. As far as the form is concerned, we hypothesize that presence or absence of an anaphoric pronoun may be partially

determined by prosodic requirements. The verb *WEGGOOIEN* ‘to throw away’ is pronounced with a stronger, faster and more pronounced movement when the final pronoun is not expressed. In van der Kooij and Crasborn (2008) it is argued that signs in clause-final position need to have sufficient prosodic weight. One way of becoming ‘heavy’ enough for the clause final position is by adding a pronominal pointing sign, and this may well play a role in the present data as well. We leave this open for future investigation.

#### 4. Topic agreement

Above, we have seen that pronouns can be omitted in NGT. Also, in the data of Van Gijn (2004) the anaphoric (resumptive) pronouns referring to the left-dislocated topics are not overtly realized. However, our NGT data reveal that topic-comment constructions of the type discussed in Section 1 often do contain a sentence-final indexical sign that points to the marked topic. Accordingly, in a study on pronoun copy in NGT, Bos (1995) found that NGT sentences frequently end in a pointing sign that refers to an argument of the verb expressed earlier in the sentence.

Bos claims that this pointing sign (pronoun copy) refers only to the subject argument, not to a (direct or indirect) object. In this section, we examine the relation between topics and the indexical signs in the comment part of the sentence. The data to be discussed below suggest that sentence-final indexes do not necessarily refer to the subject argument of the verb (*contra* Bos 1995), but rather to the topic of the sentence, which can be the subject or the object of the predicate or even a non-argument (spatio-temporal) topic.

Bos (1995) refers to the double expression of arguments within the same clause – one in its regular position and one clause finally as ‘pronoun copy’. The clause final pronoun is realized as a pointing sign. According to Bos pronoun copy is restricted to subjects.<sup>3</sup> In our data clause final pointing signs are abundant. However, they do not all refer back to subjects. In the next example the final pointing sign refers back to the location of HEMA (i.e., the spatio-temporal topic) and not to the subject.

- (26) *PT*<sub>Right</sub> *AFGELOPEN* *DINSDAG*, *#HEMA* *GEBOUW* *PT*<sub>Left</sub>  
 he last Tuesday HEMA building there  
*PT*<sub>Right</sub> *BINNENGAAN* *HORLOGE* *VINDEN* *PT*<sub>Left</sub>  
 he enter watch find there  
 ‘Last Tuesday he found a watch in the HEMA.’

3. Double occurrences of arguments other than the subject do occur and are suggested to be instances of performance errors, influences of Dutch word order or freedom of the signer (Bos 1995: 128)

The next example consists of a sequence of clauses, in which the final pointing sign refers back to the first argument topic (*he*). But in the clause about the nice sweater that ends in ‘see there/it’ the final pointing sign is not referring back to the subject (*he*), but rather to the spatio-temporal topic (the location of the building) that part of the sequence starts with (alternatively, it might point to the nice sweater).

Often the final pointing sign forms a prosodic unit with the preceding sign as we indicate with the connection symbol in the examples.

- (27)  $PT_{Right}$  KORT-GELEDEN, KORT-GELEDEN VRIJDAG  $PT_{Right}$   
 he recent recent Friday he  
 #HEMA GEBOUW<sub>Left</sub> BINNENGAAN  
 HEMA warehouse building enter  
 $PT_{Left}^{*}Right$  ZIEN MOOIE TRUI  $PT_{Left}$ , MOOI  
 there he see nice sweater there/it nice  
 $RightZIEN^{*}PT_{Left}$  VERLANGEN-NAAR  $PT_{Right}$   
 he see there/it long for he  
 ‘Last Friday he went to the HEMA where he saw a beautiful sweater;  
 he really wanted to have it.’

Since two types of topics are given in these elicited sentences, one might expect to find instances of two final pronouns, one for each type of topic competing for the final position. The next example shows that two final pointing signs, both referring back to the topics, are indeed possible. The final pointing sign refers back to the first argument topic (*he*). The prefinal pointing sign refers back to the spatio-temporal topic (*the V&D building*). The sweeping movement from left to right connects the two pointing signs creating one prosodic unit.

- (28)  $PT_{Right}$  VANDAAG  $PT_{Right}$  #VD GEBOUW  $PT_{Left}$   $PT_{Right}$   
 He today he V&D building there he  
 ZIEN BINNENGAAN  $PT_{Left}$  MOOIE TRUI ZIEN  $PT_{Left}^{*}Right$   
 see enter there nice sweater see there/it>he  
 ‘Today he saw a beautiful sweater at the V&D.’

On the basis of these examples, we propose that final indexical signs point to the topic of the sentence, rather than to the subject. This topic may be an argument of the predicate or a spatial or temporal expression.

Bos (1995) argued that the clause final pronouns refer to the subject of the clause. We have shown that rather, they refer to the topic of the clause (which can be the subject). Givón (1976) argues that subject-verb agreement often develops diachronically out of topic-verb agreement (see also Morimoto 2008 who argues this to be the case in Bantu languages). In that sense, although we claim NGT to be a topic-prominent language that shows topic agreement, it

may be on its way to developing subject-agreement, especially if subject topics are relatively frequent in comparison to object topics and spatio-temporal topics. While we have not been able to investigate this, the recent publication of the Corpus NGT consisting of 72 hours of monologues and dialogues of Deaf NGT signers will allow future investigation of the relative frequency of subject topics (Crasborn, Zwitserlood and Ros 2008).

## 5. Conclusion

We have argued that NGT distinguishes two types of topics, both of which form a clear prosodic unit. Spatio-temporal topics set the scene for the predicate-argument expression that follows. Arguments are most clearly recognizable as topics when they occur before the spatio-temporal expression; both subject and object arguments can occur sentence-initially. We hypothesized that each topic forms a separate intonational phrase.

We claim that NGT is not only a *topic-prominent* language in which the canonical structure of sentences reflects a topic-comment information structure, but more importantly, we have argued that NGT is a language which has *topic agreement* rather than subject-agreement.

*Radboud University Nijmegen, Centre for Language Studies*

[o.crasborn@let.ru.nl](mailto:o.crasborn@let.ru.nl)

[e.van.der.kooij@let.ru.nl](mailto:e.van.der.kooij@let.ru.nl)

[j.ros@let.ru.nl](mailto:j.ros@let.ru.nl)

[h.dehoop@let.ru.nl](mailto:h.dehoop@let.ru.nl)

## References

- Bergman, Brita (1984). Non-manual components in signed language: Some sentence types in Swedish Sign Language. In *Recent Research on European Sign Languages*, Filip Loncke, Penny Boyes Braem and Yvan Lebrun (eds.), 49–61. Lisse: Swets & Zeitlinger.
- Bos, Heleen (1995). Pronoun copy in Sign Language of the Netherlands. In *Sign Language Research 1994. Proceedings of the Fourth European Congress on Sign Language Research, Munich, September 1–3, 1994*, Heleen Bos and Trude Schermer (eds.). Hamburg: Signum.
- Bresnan, Joan (2001). The emergence of the unmarked pronoun. In *Optimality-Theoretic Syntax*, Géraldine Legendre, Jane Grimshaw and Sten Vikner (eds.), 113–142. Cambridge, MA: MIT Press.
- Bresnan, Joan and Sam A. Mchombo (1987). Topic, pronoun, and agreement in Chicheŵa. *Language* 63: 741–782.
- Coerts, Jane (1992). Nonmanual grammatical markers. An analysis of interrogatives, negations and topicalisations in Sign Language of the Netherlands. Ph.D. thesis, Algemene Taalwetenschap, Universiteit van Amsterdam.

- Crasborn, Onno, Inge Zwitterlood and Johan Ros (2008). Het Corpus NGT. Een digitaal open access corpus van filmpjes en annotaties van de Nederlandse Gebarentaal. Centre for Language Studies, Radboud Universiteit Nijmegen. URL: <http://www.ru.nl/corpusngt/>
- Deuchar, Margaret (1983). Is British Sign Language an SVO language? In *Language in Sign*, James Kyle and Bencie Woll (eds.), 69–76. London: Croom Helm.
- Donohue, Mark (2008). Different subjects, different marking. In *Differential Subject Marking*, Helen de Hoop and Peter de Swart (eds.), 247–279. Dordrecht: Springer.
- Engberg-Pedersen, Elisabeth (1990). Pragmatics of nonmanual behaviour in Danish Sign Language. In *SLR '87 Papers from the Fourth International Symposium on Sign Language Research*, William H. Edmondson and Fred Karlsson (eds.), 121–128. Hamburg: Signum.
- Fischer, Susan (1975). Influences on word order. In *Word Order and Word Order Change*, Charles N. Li (ed.), 1–25. University of Texas Press.
- Friedman, Lynn A. (1976). The manifestation of subject, object, and topic in the American Sign Language (1). In *Subject and Topic*, Charles N. Li (ed.), 125–148. New York: Academic Press.
- van Gijn, Ingeborg (2004). The quest for syntactic dependency. Sentential complementation in Sign Language of the Netherlands. Ph.D. dissertation, University of Amsterdam.
- Givón, Talmy (1976). Topic, pronoun and grammatical agreement. In *Subject and Topic*, Charles N. Li (ed.), 149–188. New York: Academic Press.
- Gussenhoven, Carlos (2004). *The Phonology of Tone and Intonation*. Cambridge: Cambridge University Press.
- Haiman, John (1978). Conditionals are topics. *Language* 54: 564–589.
- Huang, Yan (1991). A neo-Gricean pragmatic theory of anaphora. *Journal of Linguistics* 27: 301–335.
- Huang, Yan (1994). *The Syntax and Pragmatics of Anaphora*. Cambridge: Cambridge University Press.
- van der Kooij, Els and Onno Crasborn (2008). Syllables and the word prosodic system in Sign Language of the Netherlands. *Lingua* 118: 1307–1327.
- Li, Charles N. and Sandra A. Thompson (1976). Subject and topic: A new typology of language. In *Subject and Topic*, Charles N. Li (ed.), 457–489. New York: Academic Press.
- Liddell, Scott K. (1980). *American Sign Language Syntax*. Berlin: Mouton de Gruyter.
- Meir, Irit and Wendy Sandler (2008). *A Language in Space. The Story of Israeli Sign Language*. New York: Lawrence Erlbaum Associates.
- Morimoto, Yukiko (2008). From topic to subject marking: Implications for a typology of subject marking. In *Differential Subject Marking*, Helen de Hoop and Peter de Swart (eds.), 199–221. Dordrecht: Springer.
- Nespor, Marina and Irene Vogel (1986). *Prosodic Phonology*. Dordrecht: Foris.
- Nespor, Marina and Wendy Sandler (1999). Prosody in Israeli Sign Language. *Language and Speech* 42: 143–176.
- Portner, Paul and Katsuhiko Yabushita (2001). Specific indefinites and the information structure theory of topics. *Journal of Semantics* 18: 271–297.
- Rosenstein, Ofra (2001) ISL as a topic-prominent language. MA thesis, Haifa University.
- Sandler, Wendy (1999). Prosody in two natural language modalities. *Language and Speech* 42(2–3): 127–142.
- Sandler, Wendy and Diane Lillo-Martin (2006). *Sign Language and Linguistic Universals*. Cambridge: Cambridge University Press.
- Shi, Dingxu (2000). Topic and topic-comment constructions in Mandarin Chinese. *Language* 76: 383–408.
- Sze, Felix (2004). Blinks and intonational phrasing in Hong Kong Sign Language. Ms., TISLR8, Barcelona.
- Vallduví, Enric (1990). The informational component. Ph.D. dissertation, University of Pennsylvania, Philadelphia.



- Wilbur, Ronnie B. (1994). Eye blinks and ASL phrase structure. *Sign Language Studies* 84: 221–240.